

Quarterly Report – Public Page

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Contract Number: **DTPH56-08-T-000012**
Prepared for: **U.S. Department of Transportation, Pipeline and
Hazardous Materials Safety Administration**
Project Title: **Improvements to the External Corrosion Direct
Assessment (ECDA) Process (WP#360): Severity
Rankings of ECDA Indirect Inspection Indications**
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During this reporting period, emerging trends were identified relating above ground and below ground tools as well as analytical methodology. For below grade indications, technologies identified thus far include inline inspection, guided wave ultrasonic, electromagnetic wave, pulsed eddy current, conformable array, bore scope as well as direct examination. Of all of these technologies, the two most useful technologies for the purposes of severity indications appear to be inline inspection and direct examination. For above grade indications, the emerging technologies include spread spectrum analysis, multi-frequency ACVG and ACCA. The variations of CIS tools include Polarized CP, ON Profile Depression (Voltage), ON Profile Depression (Attenuation (dB)), OFF Profile Depression (Voltage), OFF Profile Depression (Attenuation (dB)), ON/OFF Convergence (Voltage), ON/OFF Convergence (Attenuation (dB)), and Polarization (Native or Static OFF).

The goal of this project is to develop a methodology that, when applied to indirect inspection (IDI) data, would give pipeline operators a powerful tool to use in prioritizing specific areas of pipelines for investigation. To provide a self-consistent basis of comparing data from different IDI tools, the standard signal attenuation methodology is used as the basis for interpreting above grade data. For below grade, Rupture Pressure Ratio (RPR) and coating damage surface area data are used. To reduce the various data to usable forms required data integration and analysis. The data integration was performed by aligning each data set to alignment sheet and pipeline inventory record using the methodology based on NACE RP 502-2002.

In order to provide some guidance and an understanding of an “idealized” trend expected from this investigation, we took liberty with some field data. This enabled us to develop two idealized relationships between above-ground indirect inspection indications with potential occurrence below grade: one involving a common severity ratio, the other involving coating damage surface area. Several plots confirmed the generally accepted conclusion about the existence of serious inconsistencies in the current severity ranking process.

Aside from the planned quarterly deliverables, other planned activities include periodic meetings with corporate team partners. Corrpro will participate in the first of two peer reviews and continue to participate in the PHMSA/Industry Cased Pipe Advisory committee.